

WHAT IS CLAIMED IS:

1. An image processing apparatus, comprising:
  - a first calculating unit that calculates a first feature amount from a color image signal;
  - 5 a first processing unit that processes the color image signal based on the first feature amount to generate a processed signal;
  - a compressing unit that compresses the processed signal to generate a compressed signal;
  - a storage unit that stores the compressed signal;
  - 10 a decompressing unit that decompresses the compressed signal to generate a decompressed signal;
  - a second calculating unit that calculates a second feature amount from the decompressed signal, wherein the second feature amount being multinary; and
  - 15 a second processing unit that processes the decompressed signal based on the second feature amount.
2. The image processing unit according to claim 1, wherein the second calculating unit calculates an edge amount from the  
20 compressed signal as the second feature amount.
3. The image processing unit according to claim 2, wherein the second processing unit subjects the decompressed signal to dithering in which a dither threshold is continuously changed based on the second  
25 feature amount.

4. The image processing unit according to claim 2, wherein the second processing unit processes the decompressed signal based on an error diffusion method that includes expressing quantized thresholds of the decompressed signal as a threshold matrix of a dither pattern, and determining the threshold matrix of the dither pattern based on the second feature amount.

5. The image processing unit according to claim 4, wherein the second processing unit employs a threshold matrix of a dither pattern such that an amplitude of the dither pattern increases as the second feature amount increases.

6. The image processing unit according to claim 2, wherein the second processing unit subjects the decompressed signal to adaptive filter processing in which correction of spatial frequency characteristic is continuously changed based on the second feature amount.

7. The image processing unit according to claim 1, wherein the second calculating unit includes  
an edge amount calculating unit that calculates an edge amount that is multinary from the compressed signal as the second feature amount; and  
a color calculating unit that calculates a level of achromatic color in the compressed signal as the second feature amount, wherein

the second processing unit suppresses a color component of the decompressed signal based on the edge amount and the level of achromatic color.

5     8.     The image processing unit according to claim 1, wherein  
the first calculating unit calculates a level of achromatic color in  
the color image signal as the first feature amount, and  
the first processing unit suppresses a color component of the  
color image signal based on the first feature signal.

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9.     The image processing unit according to claim 1, wherein the first  
calculating unit includes

a color calculating unit that calculates a level of achromatic  
color in the color image signal as the first feature amount; and

15     a character determining unit that determines presence or  
absence of a character in the color image signal as the first feature  
amount, and

the first processing unit suppresses a color component of the  
color image signal based on the level of achromatic color and the  
20     determination regarding the presence or absence of a character.

10.     The image processing unit according to claim 2, wherein  
the first calculating unit determines presence or absence of a  
black character in the color image signal as the first feature amount,  
25     the first processing unit determines a signal value indicating an

achromatic color for the color image signal based on the determination regarding the presence or absence of a black character, and

the second processing unit suppresses a color component of the decompressed signal based on the second feature amount and the  
5 signal value.

11. The image processing unit according to claim 8, wherein the compressing unit compresses the processed signal after converting the processed signal into a signal in a luminance color difference system.

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12. The image processing unit according to claim 9, wherein the compressing unit compresses the processed signal after converting the processed signal into a signal in a luminance color difference system.

15 13. The image processing unit according to claim 10, wherein the compressing unit compresses the processed signal after converting the processed signal into a signal in a luminance color difference system.

14. An image processing method, comprising:  
20 calculating a first feature amount from a color image signal;  
processing the color image signal based on the first feature amount to generate a processed signal;  
compressing the processed signal to generate a compressed signal;  
25 decompressing the compressed signal to generate a

decompressed signal;

calculating a second feature amount that is multinary from the  
decompressed signal; and

processing the decompressed signal based on the second  
5 feature amount.

15. A computer program containing instructions which when  
executed causes a computer to execute:

calculating a first feature amount from a color image signal;

10 processing the color image signal based on the first feature  
amount to generate a processed signal;

compressing the processed signal to generate a compressed  
signal;

decompressing the compressed signal to generate a  
15 decompressed signal;

calculating a second feature amount that is multinary from the  
decompressed signal; and

processing the decompressed signal based on the second  
feature amount.

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